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SYNOPSIS OF MEGACHILIDÆ AND BOMBINÆ.

BY CHARLES ROBERTSON.

This belongs to a series of papers—*Andreninæ*, Trans., 28, 187–194; *Halictinæ*, Can. Ent., 34, 243–250—intended to bring together in brief form the results of my studies of the local bees. My purpose primarily is to facilitate the determination of the species. Consequently, the more general groups sometimes give the common characters of the local representatives instead of those of the same groups as represented throughout the world. For example, the *Osmiini* are described as “greenish, bluish or purplish,” although there are *Osmiini* which are black. The same applies to the colors of *Stelidini*. I find that all of the local species of *Cœlixys* have the first joint of labial palpi shorter than the second. To avoid repeating that fact in the table of the species, I give it under the genus. It does not follow that all species of *Cœlixys* agree in that respect. So in other cases, in order to avoid repetition, I have moved the statements of the common characters as far forward as possible.

Also to facilitate identification I have made tables for each sex. If you are trying to determine the female of *Andronicus*, it does not help you very much to be told how the male differs from the male of *Alcidamea*. The characters of the mouth parts are given under the females and are not repeated for the males.

In this paper vein III_1 = the vein separating the stigma from marginal cell; section 2 of vein III = the vein separating stigma from first submarginal cell; section 3 of vein III = the vein separating first submarginal cell from marginal; III_4 = third transverse cubital nervure; vein IV_2 = second recurrent nervure; vein V_2 = transverse medial nervure; section 2 of vein V = the principal section of vein separating first and second discoidal cells; vein a = basal nervure; vein m = section of subdiscoidal nervure forming lower border of third discoidal cell; segment = dorsal segment of abdomen; joint, unless otherwise indicated, refers to antennæ; supra-orbital line = line drawn across vertex between summits of the eyes; malar space = space between eye and base of mandible, its length taken from the eye to a sinus a little before the middle of the base

of the mandible, its width taken on the line separating the base of the mandible.

The basal tooth of the claw in females of *Megachilini* is not homologous with the inner tooth of the claw in females of *Trachusa* and *Anthidiinæ*, as is shown by males of *Ceratias*, which have the same basal tooth and cleft claws.

Among the local *Osmiini* I do not find females with mandibles distinctly quadridentate, except in *Gnathosmia*. The so-called fourth tooth is a beveled angle between the two inner teeth and is only seen when the mandibles are held in a certain position. None of them have four external teeth like the female of *Andronicus*.

The difference between my arrangement of the *Cœlioxyini* and *Stelidini* and that of recent authors seems to imply that I have a different opinion as to their relationship. I hold that the arrangement proposed by these authors does not give a correct statement of their own views. There is a possibility, or probability, that *Stelis* was developed from *Dianthidium*. In that case *Stelis* and *Dianthidium* are more closely related than *Anthidium* and *Dianthidium*, and the groups should show that relationship.

I had formed the opinion that *Psithyrus citrinus* Sm. was the male of *P. laboriosus* F. before I happened to find a place where Walsh has expressed the same view, in *Proc. Ent. Soc.*, 3, 247, 1864.

MEGACHILIDÆ.

SUBFAMILIES AND TRIBES.

Females.

Abdomen with white, yellow or red ornamentation; claws cleft. 3.

Abdomen without ornaments, except pubescent bands.

Pulvilli absent; maxillary palpi 3-jointed; segment 1 with a broad concavity..2.

Pulvilli present; claws simple; scopa present. 1.

1. OSMIINÆ.

Metallic greenish, bluish or purplish; maxillary palpi 5-jointed; joint 1 of labial palpi shorter than 2; abdomen at base with a slight concavity or sulcate OSMIINI.

Black. TRYPETINI.

2. MEGACHILINÆ.

Scopa present; axillæ simple; pubescence of vertex, mesonotum and middle segments of abdomen more or less black MEGACHILINI.

Scopa absent; axillæ produced into spines on each side of scutel.

CÆLIOXYINI.

3. ANTHIDIINÆ.

- Scopa present; maxillary palpi 2-jointed, joint 2 long, hairy.... ANTHIDIINI.
 Scopa absent; abdomen with whitish ornaments; axillæ and scutel simple; maxillary palpi 1-jointed, short, bare; mandibles 3-dentate..STELIDINI.

Males.

- Abdomen with white, yellow or red ornaments; ventral segments 6; mandibles tridentate3.
 Abdomen without ornaments, except pubescent bands.
 Pulvilli absent; mandibles at least tridentate.....2.
 Pulvilli present; mandibles bidentate 1.

1. OSMIINÆ.

- Metallic greenish, bluish or purplish; abdomen at base with a slight concavity or sulcate; dorsal segments 7; ventral segments 5, the last usually retracted; 2 large, covering 3, except on the lateral apical angles.

OSMIINI.

- Black.....TRYPETINI.

2. MEGACHILINÆ.

- Axillæ simple; dorsal segments 7.....MEGACHILINI.
 Axillæ produced into spines on each side of scutel.....CÆLIOXYINI.

3. ANTHIDIINÆ.

- Ornaments yellow or red; legs with colored markingsANTHIDIINI.
 Ornaments whitish; legs black.....STELIDINI.

GENERA.

1. OSMIINÆ.

Females.

- Malar space wanting2.
 Malar space distinct; scopa black; face with some black hairs; vein *m* longer than section 2 of V; large.....1.
 1. Clypeus with a large subquadrate emargination, with dentiform lateral angles; malar space posteriorly with a large compressed tubercle; mandibles with a large triangular inner tooth; vein *a* beyond *V*₂.

Ceratosmia.

- Clypeus entire, with a produced thickened margin; mandibles broad, tridentate, with a basal transverse carina; vein *a* before *V*₂.

Centrosmia.

2. Mandibles with an enormous dilated basal tooth, distinctly 4-dentate; clypeus longitudinally carinate; labrum short; stigma large; vein *a* not before *V*₂; joints 1 and 5 of maxillary palpi minute; scopa long, dense, yellow**Gnathosmia.**
 Mandibles simple at base.....3.

3. Front with two tubercles, one above the other; mandibles 3-dentate; clypeus with a shining, somewhat concave, edge; vein *a* not before V_2 ; scopa white.....**Diceratosmia.**
 Front without tubercles.....4.
4. Scopa yellowish; mandibles 4-dentate; vein *a* not before V_2 .
Xanthosmia.
 Scopa black.....**Osmia.**
 Scopa white; mandibles 4-dentate.....5.
5. Vein *a* before V_2 ; clypeus rather strongly emarginate, with a rather dense apical fascia of dull whitish pubescence; front usually with an opaque blackish patch.....**Monilosmia.**
 Vein *a* not before V_26.
6. Clypeus subquadridentate, with a median emargination and two lateral teeth.
Leucosmia.
 Clypeus entire; scopa sometimes blackish on segments 5-6; joint 5 of labial palpi minute.....**Osmia.**

Males.

- Apical margin of segment 7 strongly bidentate.....3.
 Apical margin of segment 7 entire or slightly emarginate, of 6 entire.....1.
1. Middle tarsi broad, three-sided; joint 3 of antenna equals 4; hind metatarsi arcuate, clavate; hind spur enormous, twice as long as its fellow spur.
Centrosmia.
 Middle tarsi simple.....2.
2. Intermediate femur produced beneath; antenna longer than thorax, joint 4 = $2 + 3$; hind metatarsus toothed beyond middle; pubescence mixed with black.....**Ceratosmia.**
 Intermediate femur simple; joint 3 of antenna longer than 4; pubescence pale; small.....**Leucosmia.**
3. Segment 6 entire medially, strongly sinuate and strongly dentate laterally; front with two tubercles, one above the other....**Diceratosmia.**
 Segment 6 more or less notched medially, not strongly sinuate or dentate...4.
4. Ventral segment 1 emarginate; notch on 6 above broad, shallow; joint 4 of antenna about equals $2 + 3$**Xanthosmia.**
 Ventral segment 1 entire.....5.
5. Antenna moniliform; hind metatarsus arcuate, clavate; hind spur large.
Monilosmia.
 Antenna filiform; hind metatarsus and hind spur ordinary.....**Osmia.**

TRYPETINI.

Females.

- Section 3 of vein III longer than III_12.
 Section 3 of vein III not longer than III_1 ; mandibles tridentate; scopa whitish..1.
1. Segment 1 subtruncate, with a punctate concavity bounded by a salient rim; mandibles short, broad; joint 1 of labial palpi less than one-half as long as 2, 3-4 lateral; coarsely punctured.....**Trypetes.**

Segment 1 rounded, with a narrow sulcus; clypeus broadly emarginate; mandibles slender; maxillary palpi 4-jointed; joint 1 of labial palpi stout, less than one-third as long as 2, 3 = 4, 4 oblique; finely punctured.

Prochelostoma.

2. Segment 1 with a wide impunctate concavity; mandibles tridentate; maxillary palpi 4-jointed; joint 1 of labial palpi one-fifth longer than 2; scopa yellowish. **Ashmeadiella.**

Segment 1 with a narrow sulcus; maxillary palpi 5-joint; joint 1 of labial palpi two-fifths shorter than 2 3.

3. Mandibles 4-dentate; clypeus finely punctured; scopa yellowish; larger.

Andronicus.

Mandibles 3-dentate; clypeus coarsely punctured; scopa whitish; smaller.

Aleidamea.

Males.

Section 3 of vein III longer than III₁; dorsal segments 7. 2.

Section 3 of vein III not longer than III₁; antenna simple 1.

1. Segment 1 subtruncate, with a punctate concavity bounded by a salient rim; abdomen with 6 visible segments above, 2 beneath; ventral segment 1 gibbous, produced over middle of 2; dorsal segment 6 entire, clasping apex of ventral segment 1 **Trypetes.**

Segment 1 rounded, with a narrow sulcus; abdomen with 7 visible segments above, 4 beneath; dorsal segment 7 with two apical spines and two dentiform lateral angles **Prochelostoma.**

2. Flagellum simple, short, intermediate joints about one-half as long as the last; segment 1 with a wide impunctate concavity; 6 with 4 equidistant teeth, the median ones longer, subtruncate; 7 short; ventral segments 3. **Ashmeadiella.**

Flagellum with some joints deformed; ventral segments 5; dorsal segment 1 with a narrow sulcus 3.

3. Joints 4-7 dilated, 8-9 broader than long, 10-13 longer than broad; segment 7 broadly rounded, a little dilated, foveate; ventral segment 1 produced to a spine, 2 broad and concave, 4 with lateral apical angles visible.

Andronicus.

Joints 4-12 at least broader than long, 13 produced to a curved point; dorsal segment 6 with lateral apical spines **Aleidamea.**

2. MEGACHILINÆ.

MEGACHILINI.

Females.

Mandibles slender, not expanded at apex, tridentate; clypeus excavated, with lateral tubercles; claws with a blunt basal tooth; stigma long and narrow; vein *m* longer than section 2 of V; joint 3 maxillary palpi hairy, longer than 1 + 2; joint 1 of labial palpi one-sixth longer than 2.

Chelostomoides.

Mandibles broad at apex. 1.

1. Body short, robust; abdomen cordate, broad and slightly convex above; segments 2-3 of about equal width, 4 narrower; 6 much longer than 5, straight or slightly concave and lipped in profile; claws with an acute basal tooth.....4.
 Body long, slender; abdomen oblong, more cylindrical; segments 2-4 of about equal width; 6 in profile convex to base of distinct lip; scopa whitish, black on segment 6.....2.
2. Joint 3 of maxillary palpi hardly pubescent, shorter than $1 + 2$; claws with sharp basal teeth; segments 2-4 without whitish pubescent fasciæ in basal grooves; 6 longer than 5; joint 1 of labial palpi shorter than 2; third tooth of mandibles subquadrate, truncate, beveled...**Ceratias.**
 Joint 3 of maxillary palpi strongly pubescent, longer than $1 + 2$; claws with blunt basal teeth; segments 2-4 with whitish pubescent faciæ in basal grooves; 6 hardly longer than 5, much higher than long, abruptly declining to short lip; labial palpi with joint 1 longer than 2; third tooth of mandibles acute; middle teeth farthest apart.....3.
3. Clypeus truncate or slightly tuberculate; joint 1 of labial palpi one-fifth longer than 2; length 8-11 mm.**Oligotropus.**
 Clypeus strongly 6-dentate; joint 1 of labial palpi one-fourth longer than 2; length 13-14 mm.....**Gnathodon.**
4. Mandibles 4-dentate.....**Megachile.**
 Mandibles 5-dentate; scopa yellow; disc of segment 6 with long erect hairs; joint 1 of labial palpi a little shorter than 2.....5.
5. Hairs on segment 6 yellowish; length 13-15 mm.....**Xanthosarus.**
 Hairs on segment 6 black; length 11 mm.....**Anthemois.**

Males.

- Mandibles without a great tooth below; segment 6 with a low carina, emarginate in the middle, apical margin with 4 blunt teeth; 3 ventral segments; cheeks distinctly punctured; front and middle tibiæ and front tarsi red anteriorly; front tarsi simple; mesonotum in front bilineate with white pubescence.**Chelostomoides.**
- Mandibles with a great tooth below1.
1. Front tarsi simple, not flattened, black, or nearly; 4 ventral segments.....5.
 Front tarsi flattened2.
 2. Coxal spines nearly obsolete; 3 ventral segments; joint 13 of antenna simple; front tarsi black, joints 1-3 flattened, 4 simple but wider than long; inferior manibular tooth a little before the middle; segment 6 with two compressed teeth; apical margin with two teeth on each side, the lateral ones stronger; 7 not produced; cheeks with long white hair; pubescent fasciæ on apical margins and basal grooves, more dense in the latter**Oligotropus.**
 Coxal spines distinct; joint 13 of antenna broad and flat; front tarsi colored...3.
 3. Anterior coxæ bare in front and with one or more bristles; front tarsi whitish, joint 1 with a boat-shaped scale; lower angle of cheek grooved, with a posterior spine; segment 9 with carina ordinary, apical margin with a carina on each side, but no spines; 7 pointed; ventral segments 4; claws cleft and with an acute basal tooth**Ceratias.**

- Anterior coxæ without bristles in front; front metatarsus without a boat-shaped scale; apical margin of segment 6 with two teeth on each side; claws without distinct basal teeth4.
4. Mandibular tooth basal; cheek beneath with a large scale-like process; front coxæ bare anteriorly, with large apical spines; front tarsi strongly fringed, joint 1 hollowed out beneath; middle femur enormous; segment 6 with strong deeply notched carina, apical margin with median teeth stronger; 7 outwardly arcuate, sometimes slightly dentate; ventral segments 4.**Xanthosarus.**
- Mandibular tooth a little beyond the middle; cheek unarmed; front coxæ with subapical spines; front and middle tarsi and hind ones more or less red; front tarsi hardly fringed; joints 1-2 flattened, 3-5 simple; segment 6 with two compressed teeth, apical margin with lateral teeth stronger; 7 inwardly arcuate; apex of clypeus emarginate; cheeks beneath with long white hair; pubescent fasciæ more dense in basal grooves; ventral segments 3.**Gnathodon.**
5. Coxal spines strongly developed; abdomen broad; segment 6 with the carina transverse, strongly notched or denticulated; mandibles 3-4 dentate. **Megachile.**
- Coxal spines not strongly developed; mandibles 3-dentate.6.
6. Spines wanting; carina on segment 6 high, entire or nearly so, the edge at most slightly denticulated; apical margin with two lateral teeth; 7 pointed**Anthemois.**
- Spines reduced to short teeth or dentiform angles; abdomen slender; segment 6 with the base gibbous, carina arcuate, moderately notched, apical margin with lateral spine and inner dentiform carina; 7 rounded. **Cophopyga.**

COELIOXYINI.

Females.

- Abdomen conical; eyes hairy; front coxæ spined; joint 1 of labial palpi shorter than 2; mandibles tridentate; claws simple or with a blunt basal tooth**Celioxys.**

Males.

- Eyes hairy; front coxæ spined; segment 6 with 6-8 more or less evident spines. **Celioxys.**

3. ANTHIDIINÆ.

ANTHIDIINI.

Females.

- Pulvilli absent; mandibles 7-dentate; wing hyaline; section 2 of vein III shorter than III₁; vein IV₂ a little beyond III₄; vein *a* well before V₂; ornaments pale yellow.**Anthidium.**
- Pulvilli present; mandibles 5-dentate; wings clouded; section 2 of vein III about as long as III₁; vein IV₂ well beyond III₄; vein *a* little before V₂; ornaments orange-yellow or red.**Dianthidium.**

Males.

- Pulvilli absent; segment 6 with two lateral spines, 7 with three terminal ones; ornaments pale yellow.....**Anthidium.**
 Pulvilli present; ornaments orange-yellow; legs largely red.. **Dianthidium.**

STELIDINI.

Females.

- Abdomen conical; segment 6 longer than 5, with carinate border; ventral segment 6 longer than 5, produced and curved downward, with a transverse preapical carina; head with whitish ornaments; mandibles tridentate; vein IV_2 before III_4 ; vein a opposite V_2**Stelidium.**
 Abdomen depressed; segment 6 not reflexed or carinate; head without whitish ornaments; vein a opposite or a little before V_2**Microstelis.**

Males.

- Head with whitish marks; abdomen conical.....**Stelidium.**
 Head black; abdomen ovate.....**Microstelis.**

SPECIES.

1. OSMIINÆ.

OSMIINI.

Ceratosmia lignaria Say.

Centrosmia gn. nov. (Type *Osmia bucephala* Cresson), *bucephala*.

OSMIA Panzer.*Females.*

- Scopa white, sometimes blackish on segments 5-6; clypeus entire; joint 5 of maxillary palpi minute **pumila.**
 Scopa black.....1.
 1. Head with pubescence pale.....3.
 Head with pubescence more or less black; mandibles 4-dentate.....2.
 2. Bright blue or purple; mesonotum with pubescence mixed with black.
 cobaltina.
 Dull blue green; mesonotum with pubescence hardly mixed with black.
 brevis.
 3. Length 11 mm.; mandibles 4-dentate **major.**
 Length 8 mm.; mandibles 3-dentate..... **atriventris.**

Males.

- Segment 6 strongly notched; dull greenish2.
 Segment 6 at most with a shallow notch1.
 1. Bright golden green, abdomen more purplish..... **cobaltina.**
 Brassy green; margin of segment 6 testaceous **pumila.**
 2. Length 10 mm..... **major.**
 Length 8 mm..... **atriventris.**

Xanthosmia gn. nov. (Type *Osmia cordata* Rob.) *cordata*.

Gnathosmia gn. nov. (Type *Osmia georgica* Cresson) *georgica*.

Monilosmia gn. nov. (Type *Osmia canadensis* Cresson) *canadensis*.

Diceratosmia gn. nov. (Type *Osmia quadridentata* Cresson) *quadridentata*.

Leucosmia gn. nov. (Type *Osmia albiventris* Cresson) *albiventris*.

TRYPETINI.

Andronicus cylindricus Cresson.

ALCIDAMEA Cresson.

Females.

Scutel swollen; head beneath smooth, shining, impunctate, edge of cheeks beneath with a row of long incurved hairs; clypeus with a median raised line *truncata*.

Scutel moderately convex; head beneath punctate, long, pilose; clypeus without a raised line *producta*.

Males.

Segment 7 broadly rounded; ventral segment 2 longest, with a transverse subapical ridge *truncata*.

Segment 7 produced into a spine; ventral segment 2 with a great tooth-like process *producta*.

Prochelostoma gn. nov. (Type *Heriades philadelphi* Rob.) *philadelphi*.

TRYPETES Schenck.

Females.

Lower border of mandibles simple; clypeus emarginate, sides with two or three denticles; maxillary palpi 3-jointed; a little smaller..... *carinatus*.

Lower border of mandibles sinuate at base, with submedian dentiform angle; apical margin of clypeus straight, with a distinct lateral tooth; maxillary palpi 4-jointed; a little larger sp. nov. *barbatus*.

Males.

Ventral segment 2 subtruncate; antenna longer, joint 3 about one-half as long as 4; flagellum testaceous; clypeus moderately bearded..... *carinatus*.

Ventral segment 2 produced to a point; antenna shorter, joint 3 more than one-half as long as 4; flagellum blacker; clypeus strongly bearded.
..... *barbatus*.

Ashmeadiella buconis Say.

2. MEGACHILINÆ.

MEGACHILINI.

Chelostomoides rufimanus Rob.

Oligotropus gn. nov., *campanulæ* sp. nov.

CERATIAS gn. nov. (Type *Megachile pugnatus* Say).*Females.*

Cheek broad, with a great tooth beneath; clypeus short, with a median process and a tubercle on each side; mandibles 5-dentate, inner tooth small.

pugnatus.

Cheek unarmed; clypeus bisinuate, with a median angle and two teeth on each side; dorsal segment 6 with an abrupt apical lip; mandibles 4-dentate, the inner tooth most prominent*sayi*.

Males.

Middle metatarsus broader than the tibia; front and middle femora and tibiae red; boat-shaped scale subtruncate and with the scale on joint 2 produced to the tip of joint 3; front trochanter and coxa yellowish; front coxa with a single long bristle*pollicaris*.

Middle metatarsus narrower than tibia, more or less colored; front and middle femora and tibiae black, or nearly so; front trochanter and coxa black; boat-shaped scale somewhat pointed1.

1. Scale strongly produced, about equaling the tip of joint 3, at base within with a short line of black pubescence; coxal bristles 2-3, long...*pugnatus*.

Scale hardly produced, about equaling tip of joint 2, edged with fuscous pubescence; coxal bristles 4-5, short.....*sayi*.

Gnathodon gn. nov. (Type *Megachile georgica* Cresson) *georgicus*.

Xanthosarus gn. nov. (Type *Megachile latimanus* Say) *latimanus*.

Cyphopyga gn. nov. (Type *Megachile montivaga* Cresson) *montivaga*.

Anthemois gn. nov. (Type *Megachile infragilis* Cresson) *infragilis*.

MEGACHILE Latreille.*Females.*

Scopa yellow; disc of segment 6 in profile straight, with minute appressed black hairs; hind metatarsus narrower than tibia; joint 1 of labial palpi one-fifth shorter than 2.....*mendica*.

Scopa white.....1.

1. Posterior ocellus nearer the edge of the vertex than to the nearest eye, the edge passing in front of supraorbital line; segment 6 in profile straight, clothed with appressed sericeous pubescence and long sparse black hairs; hind metatarsus as broad as tibia; joint 1 of labial palpi one-sixth longer than 2*petulans*.

Posterior ocellus not nearer the edge of the vertex than to the nearest eye..2.

2. Disc of segment 6 in profile straight or slightly concave, with minute appressed pubescence.....5.

Disc of segment 6 with long erect hairs, more dense and appressed apically..3.

3. Hair of segment 6 almost entirely black; margin of clypeus denticulate; joint 1 of labial palpi a little longer than 2*addenda*.

Hair of segment 6 black at base, whitish apically; in profile more distinctly concave before an apical lip; clypeus entire; joints 1-2 of labial palpi equal.....4.

4. Segment 6 finely and closely punctured; black; pale pubescence white; hair of ventral segment 6 black *generosa*.
 Segment 6 more densely and coarsely punctured; less black; pale pubescence griseous; hair of ventral segment 6 usually whitish *brevis*.
5. Middle and hind metatarsi as wide as their tibiae; ventral segment 6 reflexed behind dorsal segment; margin of clypeus shining, with a median dentiform carina; joint 1 of labial palpi one-sixth shorter than 2.

sexdentata.

Middle and hind metatarsi narrower than their tibiae; joint 1 of labial palpi one-fourth shorter than 2; rather small and slender.

Cyphopyga montivaga.

Males.

Spines on apical margin of segment 6 long, quite distinct; carina strongly produced, narrow, with deep rounded notch and strong incurved teeth; 7 usually produced, truncate or emarginate; mandibles 4-dentate, middle tooth notched; pubescence of vertex and mesonotum rarely mixed with black..... *sexdentata*.

Spines on apical margin of segment 6 short, more or less concealed1.

1. Pubescence pale yellowish or griseous, rarely mixed with black; segment 6 with carina jagged, middle usually notched, apical margin with a lateral tooth and an inner dentiform carina nearer the lateral tooth than its fellow of the opposite side; mandibles 3-dentate *brevis*.
 Pubescence mixed with black above2.

2. Carina of segment 6 straight or concave laterally, widely notched, forming two great, usually jagged teeth; 7 produced into a long spine; mandibles 4-dentate; front tarsi strongly ciliate *addenda*.
 Carina of segment 6 convex laterally3.

3. Lateral ocellus nearer the edge of vertex than to nearest eye; carina strongly produced and notched, its margin nearly entire; apical margin of segment 6 with two lateral teeth and two median carinae; 7 truncate; mandibles 4-dentate, median tooth notched..... *petulans*.

Lateral ocellus not nearer the edge of vertex than to nearest eye; carina ordinary, its margin jagged; margin of segment 6 with four teeth; 7 pointed; mandibles 3-dentate; front tarsi strongly ciliate.....4.

4. Pubescence white; median tooth of segment 6 nearer the lateral one than to its fellow of the opposite side; larger..... *generosa*.

Pubescence more ochraceous; median tooth of segment 6 nearer its fellow than to the lateral one; smaller *mendica*.

COELIOXYINI.

COELIOXYS Latrielle.

Females.

Clypeus bilobed; segment 6 rather abruptly narrowed *sayi*.

Clypeus regularly convex1.

1. Segment 1 with basal and apical fasciae; edge of concavity carinate; 6 with a terminal reflexed spine; ventral segment 6 broadly rounded, mucronate, black ciliate..... *modesta*.

Segment 1 with apical fasciae, edge of concavity hardly carinate2.

2. Scutel with a median spine; angle of metathorax spinous*germana*.
Scutel rounded or with a blunt tubercle.....3.
3. Segments 2-4 without oblique basal fasciæ.....5.
Segments 2-4 with oblique basal fasciæ.....4.
4. Femora and tibiæ and tarsi black; ventral segment 6 narrow.....*alternata*.
Femora and tibiæ red, tarsi black; ventral segment 6 broad.....*texana*.
5. Segment 6 strongly abruptly narrowed, presenting a lateral angle; legs black,
tarsi red.....*ruftarsis*.
Segment 6 slightly sinuate laterally; legs red; small*octodentata*.

Males.

- Cheek beneath broad, punctate, concave, posterior edge carinate; segments 2-3 with basal interrupted pubescent fasciæ; 5 without lateral spines; 6 with two lateral and six short terminal spines, the median sulcus about two-thirds the width of the segment; 7 visible as a pubescent spine; ventral segments 4.....5.
- Cheek with posterior inferior angle beveled or grooved; segments 2-3 without basal fasciæ; 5 with lateral apical spines; 6 with two lateral and four long terminal spines, the median sulcus about one-third the width of the segment; 7 retracted1.
1. Scutel with a median spine; ventral segments 5, 4 sulcate, bidentate; cheek with deep shining impunctate groove; face densely pubescent.
germana.
 - Scutel rounded or with a slight median tubercle; ventral segments 4, 5 retracted2.
 2. Segment 1 with basal and apical fasciæ, edge of concavity carinate; beveled space of cheek small, shining; apical spines closely approximated, the interval with blackish hairs; middle of mandibles red; ventral segment 4 emarginate.....*modesta*.
Segment 1 with apical fasciæ, edge of concavity hardly carinate3.
 3. Bevel of cheek small, rather opaque and rough; disc of abdomen opaque, densely punctured; transverse basal sulcus on segment 2 deep; ventral segment 4 bidentate; legs black, tarsi red; large*ruftarsis*.
Bevel of cheek larger, shining, impunctate; ventral segment 4 entire.....4.
 4. Disc of abdomen shining, rather sparsely punctured, sulcus on segment 2 rather shallow; legs black, tibiæ and tarsi more or less tinged with red*sayi*.
Disc of abdomen opaque, densely punctured; sulcus on segment 2 deep; legs red*octodentata*.
 5. Femora and tibiæ and tarsi black; punctures of abdomen finer, more close; ventral segment 4 bispinous*alternata*.
Femora and tibiæ largely red, tarsi black; punctures coarser, more sparse; ventral segment 4 bidentate.....*texana*.

3. ANTHIDIINÆ.

ANTHIDIINI.

ANTHIDIUM Fabricius.*Females.*

A longitudinal stripe on each side of vertex; face, clypeus, mandibles and bases of tibiæ black; segments 2-5 with lateral fasciæ greatly indented anteriorly; apex of clypeus with two teeth on each side . . . **psoraleæ**.

A transverse stripe on each side of vertex; face, clypeus, mandibles and bases of tibiæ marked with yellowish; segments 2-4 with two spots on each side . . . **cognatum**.

Males.

Lateral spines on segment 7 with incurved points; ventral segments 4-5 emarginate; 6 with broad produced median portion having the sides of its base sinuate; longitudinal stripe on each side of vertex; segment 6 with two discal comma-shaped marks. . . . **psoraleæ**.

Lateral spines on segment 7 broadly rounded; ventral segment 4 with one, 6 with three compressed apical teeth; scape in front, transverse stripe on each side of vertex, stripe on anterior and middle tibiæ, spot on base of hind ones, two discal subquadrate spots on segment 6, yellowish . . . **cognatum**.

DIANTHIDIUM Cockerell.*Male.*

Segment 6 with a median raised line, on each side an elevated portion terminating in a discal subapical tooth and a lateral apical one; 7 emarginate, with a median carina terminating in a tubercle. . . . **boreale**.

STELIDINI.

Stelidium trypetinum Rob.

MICROSTELIS gn. nov. (Type *Stelis lateralis* Cresson).*Females.*

Abdomen with narrow fasciæ continuous or interrupted; vein IV₂ usually before III₄ . . . **fœderalis**.

Abdomen 8-14 spotted; vein IV₂ usually opposite or beyond III₄ . . . **lateralis**.

Males.

Ventral segment 3 with a median apical dentiform carina; dorsal segments 1-5 with narrow continuous or interrupted fasciæ. . . . **fœderalis**.

Ventral segment 3 simple; dorsal segments 1-5 with lateral spots . . . **lateralis**.

BOMBINÆ.*Females.*

Hind tibia convex, evenly hairy, the hairs short; vertex yellow.. **Psithyrus.**

Hind tibia more or less concave, bare, the edges with long hairs forming the corbicula or pollen-basket.....1.

1. Ocelli small, near supraorbital line, above the narrowest part of the front, the lateral ones about as far from the eye as from each other... **Bombus.**

Ocelli large, below supraorbital line, in the narrowest part of the front, the lateral farther from each other than from the eye..... **Bombias.**

Males.

Malar space much shorter than wide; ocelli large, frontal, the lateral one less than its diameter from the eye; eyes large; front narrow; vertex depressed; joint 3 as long as, or longer than, 5; vertex yellow in local species; posting themselves on some high stand and repeatedly flying out and returning..... **Bombias.**

Malar space about as long as wide; ocelli small, vertical, the lateral ones about as far as from the eye as from each other; eyes small; front broad; joint 3 usually shorter than 5.....1.

1. Outer face of hind tibia bare, or nearly so, the posterior border with long hair.

Bombus.

Outer face of hind tibiæ with hair not much shorter than that of posterior border.....2.

2. Vertex black; a black band between the wings..... **Bombus.**

Vertex with yellow; a black patch between the wings; malar space a little shorter than wide; "genitalia, squama and lacinia membranous."

Psithyrus.

BOMBIAS gn. nov. (Type *B. auricomus* nom. nov.).

Females.

Lateral ocellus about one-half as far from supraorbital line as from the nearest eye; thorax yellow, disc mixed with black; segment 1 and basal middle of 2 yellow, the latter sometimes inclining to reddish; malar space shorter than wide.....separatus.

Lateral ocellus about as near the eye as to supraorbital line; thorax in front yellow.....1.

1. Base of labrum with transverse, narrowly interrupted ridge; joint 3 = 4 + 5, the latter equal; vertex entirely, or with two lines or two tufts, yellow; scutell mixed with yellow and black, sometimes entirely yellow or black; segments 2-3 yellow; 1 black, always so in the middle, the black hairs often extending upon the basal middle of 2, sometimes yellow on the sides; malar space about as long as wide.. **auricomus.**

Base of labrum with two widely separated tubercles; joint 3 a little shorter than 4 + 5, 5 longer than 4; malar space about one-half as long as wide; scutell and segments 1-2 yellow..... **scutellaris.**

Males.

Ocelli in narrowest part of front, lateral one about one-half its diameter from eye; malar space about one-third as long as wide; joint 3 = 5; segment 1 yellow, this color extending upon 2, usually on basal middle, and inclining to reddish; mesonotum yellow, disc often with black hairs.....separatus.

Ocelli below narrowest part of front, lateral one less than one-half its diameter from eye; mesonotum yellow, with a transverse or rounded patch of black hair 1.

1. Joint 3 = 4 + 5; lateral ocellus almost touching eye; front above narrower than space occupied by ocelli; malar space about one-half as long as wide; segments 1-3 yellow, rarely 4 also, 1 usually more or less black in the middle and in front *auricomus*.

Joint 3 = 5; front above about equals space occupied by ocelli; malar space transverse linear; segments 1-2 yellowscutellaris.

BOMBUS Latreille.

Females.

Vertex yellow; mesonotum yellow.....2.

Vertex black; mesonotum with a yellow band in front; base of labrum with two tubercles 1.

1. Scutell and segments 1-4 yellow; malar space a little longer than wide.

pennsylvanicus (= fervidus).

Scutell black, often mixed with yellow; segments 2-3 yellow; 1 yellow, mixed with black on the lateral basal angles, or the entire basal portion black, the apical margin always yellow, the yellow hairs more abundant in the middle; malar space about as long as wide.

americanorum.

2. Segment 1 yellow; disc of mesonotum without black; labrum with basal ridge forming a subquadrate sinus nearly reaching apical margin; malar space shorter than wide **virginicus.**

Segments 1-2 more or less yellow; mesonotum with black hairs; base of labrum with two tubercles; malar space longer than wide 3.

3. Segment 2 yellow on basal middleridingsii.
Segment 2 yellow, sometimes more or less black apically.....consimilis.

Segment 2 yellow, sometimes more or less black apically.....**consimilis.**

Males.

Hind tibia rather evenly clothed with short hair; antenna long, joint 5 nearly so long as $3 + 4$; vertex and band between the wings black; segments 1-4 yellow; 5-7 yellow, black or fulvous, or yellow with fulvous tip, yellow with black tip, or black, with fulvous tip. . . . *americanorum*.

Hind tibia with short sparse hair on outer face, posterior border with hair as long as diameter of the joint; vertex, segment 1 and mesonotum yellow, the latter usually with black hairs on the disc.....1

1. Malar space a little shorter than wide; joints 3 and 4 subequal; segment 2 at most with a little yellow on basal middle *virginicus*.
 Malar space longer than wide; joint 3 longer than 4; segment 2 largely yellow 2,
2. Joint 3 usually as long as 5; segment 2 more or less black on the sides and apical middle, 4 sometimes a little yellow *ridingsii*.
 Joint 3 shorter than 5; segment 2 yellow *consimilis*.

PSITHYRUS Lepeletier.

Females.

- Abdomen finely punctured, pubescence short, fine, black, rarely a little yellow on lateral apical margins of segment 4; pleura and space between wings black; wings darker *variabilis*.
- Abdomen coarsely punctured, pubescence long, coarse, blunt, segment 3 usually, 1, 2 and 4 often, more or less yellow laterally; pleura yellow; mesonotum yellow, with some black hairs on disc; wing paler. *laboriosus*.

Males.

- Abdomen with lateral apical margins of segments 3-4, basal angles of 5, and sometimes sides of 1 and 2, yellow *variabilis*.
- Abdomen with segment 1, and 2 except basal angles, yellow; 3 yellow, or black, with sides yellow *laboriosus*.

Carlinville, Illinois.